



## SEQUENCE LISTING

&lt;110&gt; Bohach, Gregory I.

&lt;120&gt; NON-TOXIC IMMUNE STIMULATING ENTEROTOXIN COMPOSITIONS

&lt;130&gt; 12136.1USWO

&lt;140&gt; US 09/555,115

&lt;141&gt; 2000-08-01

&lt;150&gt; PCT/US98/25107

&lt;151&gt; 1998-12-01

&lt;150&gt; US 60/067,357

&lt;151&gt; 1997-12-02

&lt;160&gt; 66

&lt;170&gt; PatentIn version 3.1

&lt;210&gt; 1

&lt;211&gt; 240

&lt;212&gt; PRT

&lt;213&gt; Staphylococcus aureus

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (240)..(240)

&lt;223&gt; Xaa is unknown.

&lt;400&gt; 1

Glu Ser Gln Pro Asp Pro Thr Pro Asp Glu Leu His Lys Ala Ser Lys  
1 5 10 15

Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr  
20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
50 55 60

Lys Thr Glu Leu Leu Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu  
65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
180 185 190

Gly Asn Thr Phe Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
210 215 220

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<213> Staphylococcus aureus

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<223> Xaa is unknown.

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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
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Val Ser Ala Thr Lys Val Met Ser Val Asp Lys Phe Leu Ala His Asp  
35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val

50                      55                      60  
 Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65                      70                      75                      80  
 Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
                     85                      90                      95  
 Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
                     100                      105                      110  
 Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
                     115                      120                      125  
 Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
                     130                      135                      140  
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145                      150                      155                      160  
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
                     165                      170                      175  
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
                     180                      185                      190  
 Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
                     195                      200                      205  
 Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
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 <213> Staphylococcus aureus

<220>  
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 <223> Xaa is unknown.

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 Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
 20 25 30  
 Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45  
 Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60  
 Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80  
 Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 85 90 95  
 Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
 100 105 110  
 Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125  
 Gln Asn Val Leu Val Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140  
 Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160  
 Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175  
 Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
 180 185 190  
 Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195 200 205  
 Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
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 Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235 240

<210> 4  
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 <213> Staphylococcus aureus

<220>  
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 <222> (240)..(240)  
 <223> Xaa is unknown.

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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
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Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Asn Asp Lys Lys Leu Asn Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Asn Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Ser Gly Lys Thr Cys Met Tyr  
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Ser Asn  
 180 185 190

Gly Asn Thr Phe Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195 200 205

Asp Gln Ser Lys Tyr Leu Met Ile Tyr Lys Asp Asn Lys Met Val Asp  
 210 215 220

Ser Lys Ser Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235 240

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 <213> Staphylococcus aureus

<220>  
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 <222> (240)..(240)  
 <223> Xaa is unknown.

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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
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Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser  
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
 180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
 210 215 220

Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
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 <223> Xaa is unknown.

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Phe Thr Gly Thr Met Gly Asn Met Lys Tyr Leu Tyr Asp Asp His Tyr  
 20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Arg Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser

85	90	95
Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr		
100	105	110
Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu		
115	120	125
Gln Asn Val Leu Val Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser		
130	135	140
Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp		
145	150	155
Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe		
165	170	175
Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn		
180	185	190
Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe		
195	200	205
Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp		
210	215	220
Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa		
225	230	235
240		

<210> 7  
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<220>  
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 <223> Xaa is unknown.

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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp Arg Tyr
20                      25                      30



Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
 35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
 50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
 65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Phe  
 85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
 100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
 115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
 130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
 145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
 165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
 180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
 195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
 210 215 220

Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235 240

<210> 8  
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<220>  
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<223> Xaa is unknown.

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Phe Thr Gly Leu Met Glu Asn Met Lys Val Leu Tyr Asp Asp Arg Tyr  
20 25 30

Val Ser Ala Thr Lys Val Lys Ser Val Asp Lys Phe Leu Ala His Asp  
35 40 45

Leu Ile Tyr Asn Ile Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val  
50 55 60

Lys Thr Glu Leu Leu Asn Glu Asp Leu Ala Lys Lys Tyr Lys Asp Glu  
65 70 75 80

Val Val Asp Val Tyr Gly Ser Asn Tyr Tyr Val Asn Cys Cys Phe Phe  
85 90 95

Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr  
100 105 110

Gly Gly Ile Thr Lys His Glu Gly Asn His Phe Asp Asn Gly Asn Leu  
115 120 125

Gln Asn Val Leu Ile Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser  
130 135 140

Phe Glu Val Gln Thr Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp  
145 150 155 160

Ile Lys Ala Arg Asn Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe  
165 170 175

Asn Ser Ser Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn  
180 185 190

Gly Asn Thr Phe Gln Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe  
195 200 205

Asp Gln Ser Lys Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp  
210 215 220

Ser Lys Arg Val Lys Ile Glu Val His Leu Thr Thr Lys Asn Gly Xaa  
 225 230 235 240

<210> 9  
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 <213> Staphylococcus aureus

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Cys Ala Gly Gly Thr Pro Asn Lys Thr Ala Cys  
 1 5 10

<210> 10  
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 <213> Staphylococcus aureus

<400> 10

Cys Tyr Phe Ser Lys Lys Thr Asn Asp Ile Asn Ser His Gln Thr Pro  
 1 5 10 15

Lys Arg Lys Thr Cys  
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<210> 11  
 <211> 18  
 <212> PRT  
 <213> Staphylococcus aureus

<400> 11

Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys  
 1 5 10 15

Thr Cys

<210> 12  
 <211> 18  
 <212> PRT  
 <213> Staphylococcus aureus

<400> 12

Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys  
 1 5 10 15

Thr Cys

<210> 13  
<211> 18  
<212> PRT  
<213> Staphylococcus aureus

<400> 13

Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys  
1 5 10 15

Thr Cys

<210> 14  
<211> 18  
<212> PRT  
<213> Staphylococcus aureus

<400> 14

Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Ser Gly Lys  
1 5 10 15

Thr Cys

<210> 15  
<211> 18  
<212> PRT  
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<400> 15

Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys  
1 5 10 15

Thr Cys

<210> 16  
<211> 18  
<212> PRT  
<213> Staphylococcus aureus

<400> 16

Cys Tyr Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys  
1 5 10 15

Thr Cys

<210> 17  
<211> 18  
<212> PRT  
<213> Staphylococcus aureus

<400> 17

Cys Cys Phe Ser Ser Lys Asp Asn Val Gly Lys Val Thr Gly Gly Lys  
1 5 10 15

Thr Cys

<210> 18  
<211> 11  
<212> PRT  
<213> Staphylococcus aureus

<400> 18

Lys Tyr Lys Gly Lys Lys Val Asp Leu Tyr Gly  
1 5 10

<210> 19  
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<212> PRT  
<213> Staphylococcus aureus

<400> 19

Lys Tyr Lys Asp Lys Tyr Val Asp Val Phe Gly  
1 5 10

<210> 20  
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<212> PRT  
<213> Staphylococcus aureus

<400> 20

Lys Tyr Lys Asp Glu Val Val Asp Val Tyr Gly  
1 5 10

<210> 21  
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<212> PRT  
<213> Staphylococcus aureus

<400> 21

Lys Tyr Lys Asp Glu Val Val Asp Val Tyr Gly  
1 5 10

<210> 22  
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 <212> PRT  
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 Lys Tyr Lys Asp Glu Val Val Asp Val Tyr Gly  
 1 5 10  
  
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 <213> Staphylococcus aureus  
  
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 His Phe Lys Ser Lys Asn Val Asp Val Tyr Pro  
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 <210> 24  
 <211> 11  
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 <213> Staphylococcus aureus  
  
 <400> 24  
  
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 <212> PRT  
 <213> Streptococcus pyrogenes  
  
 <400> 25  
  
 Leu Phe Lys Asp Lys Asn Val Asp Ile Tyr Gly  
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 <210> 26  
 <211> 11  
 <212> PRT  
 <213> Streptococcus pyrogenes  
  
 <400> 26  
  
 Phe Lys Arg Asp Asp His Val Asp Val Phe Gly  
 1 5 10  
  
 <210> 27  
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 <212> PRT  
 <213> Staphylococcus aureus

<400> 27

Phe Thr Lys Gly Glu Lys Val Asp Leu Asn Thr  
1 5 10

<210> 28

<211> 17

<212> PRT

<213> Staphylococcus aureus

<400> 28

Lys Lys Asn Val Thr Val Gln Glu Leu Asp Leu Gln Ala Arg Arg Tyr  
1 5 10 15

Leu

<210> 29

<211> 17

<212> PRT

<213> Staphylococcus aureus

<400> 29

Lys Lys Lys Val Thr Ala Gln Glu Leu Asp Tyr Leu Thr Arg His Tyr  
1 5 10 15

Leu

<210> 30

<211> 17

<212> PRT

<213> Staphylococcus aureus

<400> 30

Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe  
1 5 10 15

Leu

<210> 31

<211> 17

<212> PRT

<213> Staphylococcus aureus

<400> 31

Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe  
1 5 10 15

Leu

<210> 32  
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<213> Staphylococcus aureus

<400> 32

Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn Phe  
1 5 10 15

Leu

<210> 33  
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<212> PRT  
<213> Staphylococcus aureus

<400> 33

Lys Lys Asn Val Thr Val Gln Glu Leu Asp Ala Gln Ala Arg Arg Tyr  
1 5 10 15

Leu

<210> 34  
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<212> PRT  
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<400> 34

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1 5 10 15

Leu

<210> 35  
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<212> PRT  
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<400> 35

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Leu

<210> 36  
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<400> 36

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1 5 10 15

Leu

<210> 37  
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<213> Staphylococcus aureus

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Lys Lys Gln Leu Ile  
1 5

<210> 38  
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<400> 38

Leu Asp Phe Glu Ile Arg His Gln Leu  
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<210> 39  
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<400> 39

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1 5 10

<210> 40  
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<212> PRT  
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<400> 40

Cys Met Tyr Gly Gly Val Thr Glu His Asn Gly Asn  
1 5 10

<210> 41  
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<212> PRT  
<213> Staphylococcus aureus

<400> 41

Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn  
1 5 10

<210> 42  
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<212> PRT  
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<400> 42

Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn  
1 5 10

<210> 43  
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<400> 43

Cys Met Tyr Gly Gly Ile Thr Lys His Glu Gly Asn  
1 5 10

<210> 44  
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<400> 44

Cys Thr Tyr Gly Gly Val Thr Pro His Glu Gly Asn  
1 5 10

<210> 45  
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<400> 45

Cys Met Tyr Gly Gly Val Thr Leu His Asp Asn Asn  
1 5 10

<210> 46  
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<400> 46

Cys Ile Tyr Gly Gly Val Thr Asn His Glu Gly Asn  
1 5 10

<210> 47  
<211> 12  
<212> PRT  
<213> Streptococcus pyrogenes

<400> 47

Tyr Ile Tyr Gly Gly Ile Thr Pro Ala Gln Asn Asn  
1 5 10

<210> 48  
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<212> PRT  
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<400> 48

Phe Gln Ile Ser Gly Val Thr Asn Thr Glu Lys Leu  
1 5 10

<210> 49  
<211> 14  
<212> PRT  
<213> Staphylococcus aureus

<400> 49

Leu Leu Arg Ile Tyr Arg Asp Asn Lys Thr Ile Asn Ser Glu  
1 5 10

<210> 50  
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<400> 50

Tyr Leu Met Met Tyr Asn Asp Asn Lys Met Val Asp Ser Lys  
1 5 10

<210> 51  
<211> 14  
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Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp Ser Lys  
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<210> 52

<211> 14

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<213> Staphylococcus aureus

<400> 52

Tyr Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp Ser Lys  
1 5 10

<210> 53

<211> 14

<212> PRT

<213> Staphylococcus aureus

<400> 53

Tyr Leu Met Ile Tyr Lys Asp Asn Lys Met Val Asp Ser Lys  
1 5 10

<210> 54

<211> 14

<212> PRT

<213> Staphylococcus aureus

<400> 54

Gln Leu Arg Ile Tyr Ser Asp Asn Lys Thr Leu Ser Thr Glu  
1 5 10

<210> 55

<211> 14

<212> PRT

<213> Staphylococcus aureus

<400> 55

Leu Leu Arg Ile Tyr Arg Asp Asn Lys Thr Ile Asn Ser Glu  
1 5 10

<210> 56

<211> 14

<212> PRT

<213> Streptococcus pyrogenes

<400> 56

Tyr Leu Met Ile Tyr Lys Asp Met Glu Thr Leu Asp Ser Asn  
1 5 10

<210> 57  
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 <212> PRT  
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<400> 57

Ile Phe Ala Lys Tyr Lys Asp Asn Arg Ile Ile Asn Met Lys  
 1 5 10

<210> 58  
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<400> 58

Pro Pro Ile Asn Ile Asp Glu Ile Lys Thr Ile Glu Ala Glu  
 1 5 10

<210> 59  
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 <212> DNA  
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<210> 60  
 <211> 18  
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<400> 60

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 1 5 10 15

Thr Cys

<210> 61  
 <211> 42  
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<220>  
 <223> Synthetic

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<210> 62

<211> 14  
<212> PRT  
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<223> Synthetic

<400> 62

Cys Tyr Phe Ser Ser Lys Asp Asn Ala Gly Gly Lys Thr Cys  
1 5 10

<210> 63  
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27

<210> 64  
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<212> PRT  
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<400> 64

Cys Tyr Phe Ser Ser Gly Lys Thr Cys  
1 5

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tgctgtggca aaacttgt

18

<210> 66  
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<220>  
<223> Synthetic

<400> 66

Cys Cys Gly Lys Thr Cys  
1 5